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ABSTRACT

This document describes the systematic approach used at Philips High School (PHS) in Birmingham, Alabama, to collect, store, and use various diagnostic tools when assisting special population enrollees with choices influencing their educational/occupational goals. It explains how the Differential Aptitude Test (DAT) is used in combination with interest surveys, course selection sheets, other instruments, and input from parents and teachers to recruit students with varied interests, aptitudes, and goals and to place those students in the proper courses and, when necessary, provide them with remedial support through a computer-assisted basic skills program that can be implemented through PHS's vocational education department. The document contains the following materials explaining the PHS program to reinforce educational/occupational choices for special population enrollees: description of the DAT and its components; definitions of the various categories under the heading of special population enrollees; procedures/guidelines for analyzing DAT and Career Interest Inventory results and interpreting DAT/Career Interest Inventory results; available remediation support; a table cross-referencing course offerings, aptitudes, and occupational groups; and sample educational plans developed for three students. (MN)

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Differential Aptitude Test: A Data Source for Reinforcement of Educational/Occupational Choices for Special Population Enrollees

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INTRODUCTION

Data presented in this packet represents a systematic approach employed to collect, store and utilize various diagnostic tools when assisting special population enrollees with choices influencing educational/occupational goals.

Although there are varied approaches for the collection and presentation of decision influencing data, our school is experiencing success with use of the **Differential Aptitude Test (DAT).** Interest surveys, course selection sheets and many other instruments when employed in combination with other tools.

Moreover, occasions may occur when a limited number of assessment tools are employed and the resulting portfolio will indicate a success solution for the case treated.

If, therefore, we are accessing/assisting students with varied interest, aptitudes and goals, we must employ a sufficient variety interrelated data systems and technologies.

DIFFERENTIAL APTITUDE TEST DEFINED

The structuring of educational goals is like unto the continuous remodeling of a building with a never ending roofline. Each constructed level motivates the need for a different roof shape to confirm the size and shape of the structure. As soon as we prepare the majority of our population for the needs of the society and the business world, we find that many of the needs met at that point become obsolete. This creates a need to revamp the educational process. In order to decrease needs for career revamping educational goals, the Differential Aptitude Test was employed as one of the major tools supportive for directing students to areas where they can be more successful in reaching their goals. Success with the DAT is vital because it reveals to the individual that his/her capabilities may be. The DAT indicates a measure for ones ability to learn or to succeed in a number of different areas. When working with special population students it is important to be very familiar with DAT indicators and the relevance to the needs of the individual. Supportive of the continuous remolding theory the greatest need a special population student is to experience success in whatever portion accomplishable in order to trigger the drive to continue. If each of us are seeking to create an educational environment based upon successful chain reaction experiences, we must first become familiar with terminology of the Differential Aptitude Test (DAT). Consequently, each indicator (area [section]) of the DAT are categorized into one of the following definitions:

Verbal Reasoning measures word relationships ability. To read and understand the written word is important to people in law, education and business.

Numerical Reasoning measures ability to perform mathematical tasks. This is important to persons wanting jobs as carpenters, machinists, bookkeepers or lab technicians.

Abstract Reasoning means the ability to see relationships. It centers around geometric figures in different sizes and positions. This shows good potentials for students interested in drafting, auto mechanics or computer programming.

Perceptual Speed and Accuracy measures the ability to compare and mark written lists quickly and correctly. This points to jobs in clerical work and data.

Mechanical Reasoning measures the ability to understand basic mechanical principles of machinery, tools and motion. Persons in engineering, electricity or mechanics will find it easy to learn how to operate and repair complex devises.

Space Relations measures the ability to visualize the shapes and position of objects when rotated in space. Dentists, artists, designers and architects do well with such ability.

Spelling measures the ability to spell common English words. This is an asset to any academic or vocational course.

Language Usage measures the ability to detect errors in grammar, punctuation and capitalization. This is essential in school work as well as most occupational areas.

Scholastic Aptitude combines verbal and numerical reasoning scores which measure the ability to learn from books, teachers and to master school subjects.

The understanding and application of the aforestated terms will serve as key determining factors for the formulation of career objectives.

WHO ARE SPECIAL POPULATION ENROLLEES

The Educational System is one phase of our governmental make-up that has to provide a variety of services and meet the needs of a complex society. These needs must cover the special population. This group continues to expand each year and has become a larger percent of our school population. There are several categories within this group:

Disabilities include students who are limited because of physical or mental impairment.

- The Hearing Impaired are limited in the educational process because of the inability to hear. Those who are totally or partially deaf must be provided vocational services.

- The Deaf-Blind are those persons who have a combination of hearing and visual impairment. Even though the educational process may be slower in more modified ways, they must be granted the opportunity.

- Educational Mentally Retarded (EMR) includes those persons who have impairments in adaptive behavior that manifested during the developmental stages of his life. Others have below average intellectual ability.

- Emotional Conflict (EC) is a group of individuals who are socially maladjusted with such characteristics as inability to learn, cannot build interpersonal relationships, inappropriate behavior and moodiness or depression.

- Learning Disabilities (LD) comprise the group of students with deficiencies in understanding or using language resulting in the inability to listen, think, speak, read, write, spell or do mathematical calculations.

- Others who are served educationally are Health Impaired, Speech Impaired and Visually Impaired.

ANALYZING THE DAT, CAREER INTEREST INVENTORY AND SPECIAL POPULATIONS

The Career Interest Inventory is an instrument designed to assist students in making decisions relative to educational and vocational plans. It covers educational goals, school subjects/activities and various fields of work. It has been found that an occupational choice has very little future in the interest and ability are not strong enough to support it. Through the use of questions and statements about occupations, school activities, subjects and educational goals, the career interest identified are more stabilized for the student at that age. However, the interest will change as the student receives more exposure and becomes more mature vocationally.

After making an overview of the Differential Aptitude Test, the Career Interest Inventory and Special Population, it is easy to see how the three correlate and inter-changeably affect the others relative to educational/occupational choices. To provide the best results for the special population, procedures for preparation and administration should be planned very carefully. In addition to the basic procedure, the following should be considered:

- All students who fall into the Special Populations category should be identified. Check IEP reports for permission and special accommodations.
- Because of their various disadvantages, the practice test can be given to them in smaller groups. This type setting tends to stimulate better understanding.
- Orientate the practice session orally if special accommodations indicate such.
- Create an inviting atmosphere of "wanting to help," "positive attitude" and "self-determination."

- **Explain the purpose of the test and how it can benefit each individually.**
- **Explain some pre-test items in terms that are relative to their concepts (world or situation).**

INTERPRETATION OF DAT/CAREER INTEREST

The utilization of test scores is the prime element of the success of any total program. When the DAT results are returned to the school, several avenues can be taken to make them meaningful to the student:

A. Organize small counseling groups.

- English classes or history classes are good arrangements for test interpretation. (English and history teachers tend to be very good supporters of this procedure. It helps them to relate the results to their classroom teaching procedure).

- Explain the aptitude in terms of their relevance to courses being taken by the student.

  Ex. Verbal reasoning (English and/or History; Numerical reasoning/Algebra

- Avoid implying that these are in any way a final profile of the student.

- When explaining the Career Interest Inventory, point out its connection to the aptitudes by the use of the occupational groups, subject areas and school activities.

Ex.	Occupational group	Fine Arts
	Subjects liked most	Art, Music, Creative Writing
	School activities	School plays, school newspaper, photography club
	Aptitude-highest	Abstract reasoning, language usage, space relations

B. Parental involvement is vital. Parents can be informed of their child's high aptitudes. They can be encouraged to assist them in course selections and occupational career choices. This can

be done by telephone, parent conferences, Parent Teachers Association meetings, etc.

C. Pre-Registration of Special Population for course selections is an excellent time to use the DAT/Career Inventory results.

- Have one-on-one conferences with special population students.
- Show them what their potentials (aptitude) are and how they relate to some course offerings.
- Use the SOICC (State Occupational Information Coordinating Committee) to expose the student to occupational choices.
- During IEP conference, make parents aware of the good possibilities for their children.
- Encourage a tour of the department of interest. This, too, will ease their tension about certain classes.
- Make teachers and parents aware of the aptitude status and career interest of the students.
- Make a list of students who rank high in their aptitude by areas. Make same list for career interest clusters.
- Teachers can identify potential students who may do well in the courses they teach. This can be an asset to them during recruitment period of the year.

  Ex. The Occupational Interest Report will list all 9th graders interested in Health Services. This list can be given to Health Occupation Education teachers.

List of students according to highest aptitudes can also be used by vocational and academic teachers.

- Abstract reasoning list can be used by teachers of technical drawing, auto repair and mathematics.

- Many vocational classes could be the best choices in preparation for an occupation in the job market.

  Ex. If the interest is Building Trades, the student may want to enroll in the World of Construction class.

  If the interest is Fine Arts, the student may want to try an Art class.

- Students with a physical handicap are given accommodations according to the IEP.

- Guide the At-Risk students toward choices of courses that will show the closeness between his aptitude/interest and school/work. The completion of short range goals is needed at this point.

- The disadvantaged, being very sensitive to failure, must be encouraged by his/her highest aptitude scores. Apply that to occupational choices and the courses he/she should take.

- Make all course selections relative to aptitude and occupational choices.

REMEDIATION SUPPORT

All effort is put forth to keep the students motivated and productive in their studies. To answer this, a Computer Assisted Basic Skills program (CABS) can be implemented through the Vocational Education Department. CABS should include the basic concepts of reading, mathematics, science and communication skills. The rationale of CABS is as follows:

> "Many students lack the skills which assist them to think and make adequate decisions that will lead to successful living. Student need to be equipped with such skills that will enable them to be good, productive, law-abiding citizens. These attributes are highly important to society; therefore, it is believed that the economic and academically disadvantaged students, the handicapped or special needs students, the limited English proficiency students and the regular student should be a part of the CABS program and should be encouraged to work toward their highest potential."

Students can be channeled through the CABS program from the various vocational classes on a rotating basis. Students should be recommended by their teachers spending two days per week for a period of six weeks in the lab. Upon completion of the program students will return to his regular vocational class. This procedure has been very effective.

The Special Population in our school system cannot be set aside for future consideration. It is a growing segment of our enrollment. With the help of the entire teaching staff they can be just as productive as any other student.

Using the DAT results, students can realize their possibilities of life's occupations with less fear of failure. The aptitude and career interest levels will give great support to the IEP course selections while in high school. A

large percentage of those selections involve some aspect of the vocational program. With the progression of the Tech-Prep concept, our students will be better prepared for the job market.

Teacher Resource for Possible Student Recruitment

TEACHER COURSE OFFERINGS	APTITUDE	OCCU. GROUPS
Air Conditioning/Ref.	Abstract reasoning Numerical reasoning Mechanical reasoning Space relations	Machine operation Air Conditioning Installer A/C repairer
Business Education	Verbal reasoning Numerical reasoning Perceptual speed and accuracy Spelling Language usage	Sales Clerical services Secretary Clerk typist Bookkeeper Computer programmer Customer services
Electronics	Numerical reasoning Mechanical reasoning Abstract reasoning Space relations	Benchwork Building trades Electrician TV repair Electronic tester Machine operation
Graphic Arts	Verbal reasoning Abstract reasoning Mechanical reasoning Space relations	Printing press operator Designer
HOE	Verbal reasoning Abstract reasoning Space relations Numerical reasoning	Health care Dietician Nurse/Dentist Physical Therapist Optometrist
Home Economics	Verbal reasoning Numerical reasoning Abstract reasoning Space relations	Customer service Food service Barber Chef Flight attendant Cosmetologist Mortician
Marketing	Verbal reasoning Numerical reasoning Perceptual speed and accuracy	Sales Management/Mgr. Sales person (Apparels [Food]) Demonstrator/Buyer Math & Science
Principles of Tech.	Verbal reasoning Abstract reasoning Numerical reasoning	Computer programmer Engineering Teacher

Teacher Resource for Possible Student Recruitment

Welding	Space relations Mechanical reasoning Numerical reasoning	Benchwork Building trades Auto body repair Glazier Welder Plumber
World of Construction	Numerical reasoning Space relations Mechanical reasoning Abstract reasoning	Benchwork Building trades Carpenter Roofer Plumber Furniture restorer Electrician
English (Speech, Drama, Music, Foreign Language)	Verbal reasoning Language usage Space relations Abstract reasoning	Educational services/Fine Arts Actor Writer Teacher Counselor Editor Musician Reporter/Journalist Radio/TV
Mathematics & Science: Physics, Physical Science, Biology	Verbal reasoning Numerical reasoning Abstract reasoning Mechanical reasoning Space relations	Math and Science Architect Chemist Civil Engineer Computer Programmer Surveyor, Land Actuary
Technical Drawing	Numerical reasoning Mechanical reasoning Abstract reasoning Space relations	Machine operation Building trades Architect Molder Painter
History -Art	Language usage Abstract reasoning Verbal reasoning Numerical reasoning	Legal services Educational services Teacher Librarian Supervisor/Ed. Lawyer Judge
Driver Education	Numerical reasoning Mechanical reasoning Space relations	Transportation Dispatcher Bus/truck driver

IAWANDA WHY

ENTERED HIGH SCHOOL:	• 1989 • REGULAR STUDENT • BASIC COURSE OF STUDY
BACKGROUND	• REFERRAL FROM TEACHERS • SENT TO COUNSELOR TO BE TESTED FOR SPECIAL SERVICES • REFERRAL PACKAGES WERE COMPLETED. • RESULTS-NOT QUALIFIED. SCORE WAS 2 POINTS ABOVE CUT-OFF • RECOMMENDED FOR SPEECH IMPEDIMENT • RESULTS-RECEIVED ASSISTANCE FROM SPEECH THERAPIST TWICE A WEEK • TUTORIAL SERVICES-3 TIMES A WEEK DURING STUDY PERIODS
NOVEMBER 1989	• COMPLETED THE DAT APTITUDE: SPEED AND ACCURACY, NUMERICAL REASONING • OCCUPATIONAL GROUP: CONSUMER SERVICES • SUBJECTS: HOME ECONOMICS (FOOD/CLOTHING)
SPRING 1990	• RE-DIRECTED IEP • PRE-REGISTRATION FOR COURSES: 1990-91 Selected Cashier Training I
SPRING 1991	• PRE-REGISTRATION FOR COURSES: 1991-92 Selected Food Marketing I
SPRING 1992	• PRE REGISTRATION FOR COURSES: 1992-93 Co-op Marketing Education II
1992-1993	• WORKING CASH REGISTER FOR FOOD CHAIN
SUMMER 1993	• WORKS FULL TIME FOR FOOD CHAIN
NOTE:	• BECAUSE OF COURSE WORK AND CO-OP TRAINING SKILLS, SHE WILL SURVIVE COMFORTABLY. SHE MAY NOT BECOME A COLLEGE GRADUATE, BUT SHE CAN HOLD A PRODUCTIVE JOB.

ENTERED HIGH SCHOOL:

- 1989
- REGULAR STUDENT
- REGULAR COURSE OF STUDY

BACKGROUND:

- SPECIAL POPULATION GROUP
  ECONOMICALLY DISADVANTAGED

NOVEMBER 1989

- COMPLETED THE DAT/CAREER INTEREST SURVEY
- APTITUDE: VERBAL REASONING, LANGUAGE USAGE, NUMERICAL REASONING
- OCCUPATIONAL GROUP: SALES
- SUBJECTS: MARKETING AND SALES

SPRING 1990

- REDIRECTED HER IEP
- SHE STATED THAT HER OCCUPATIONAL DESIRE WAS TO WORK IN A BUSINESS AND BECOME MANAGER
- PRE-REGISTRATION FOR COURSES 1990-91 INCLUDED A VOCATIONAL COURSE: INTRODUCTION TO MARKETING
- A LEADING CLOTHING STORE ORGANIZED A LONG-TERM PROGRAM FOR DISADVANTAGED STUDENTS
  a. low income family
  b. interest relative to business (marketing)
  c. academic potential

  PROGRAM DESIGN:
  a. build self-confidence
  b. personality improvement
  c. mentor segment
  d. work program-money management
  e. educational planning and preparation
  f. pursue a career in any phase of business

1990-1993

- THE STUDENT FOLLOWED THE SERIES OF COURSE WORK IN THE MARKETING EDUCATION PROGRAM. THE VOCATIONAL INSTRUCTOR MONITORED THE STUDENT'S WORK PROGRAM AND COURSE PROGRESS.

JUNE 1993

- GRADUATED

FALL 1993

- FULL TIME EMPLOYEE AT THE CLOTHING STORE FOR THE SUMMER

- FULL TIME STUDENT AT ONE OF THE STATE UNIVERSITIES.
  MAJOR: BUSINESS MARKETING
  MINOR: ACCOUNTING

TOM T

ENTERED HIGH SCHOOL	• 1988
BACKGROUND	• SPECIAL POPULATION: LEARNING DISABILITY (LD MATH AND ENGLISH) • PLACEMENT WAS DONE WHILE ATTENDING MIDDLE SCHOOL
NOVEMBER 1988	• COMPLETED THE DAT • APTITUDE: VERBAL REASONING, SPACE RELATIONS, NUMERICAL REASONING • OCCUPATIONAL GROUP: T. V. REPAIR, ELECTRONIC TESTER • SUBJECT: ELECTRONICS
SPRING 1989	• REDIRECTED IEP • PRE-REGISTRATION FOR COURSES 1989-90: INTRO TO ELECTRONICS
SPRING 1990	• PRE-REGISTRATION FOR COURSES 1990-91: ELECTRONICS I
SPRING 1991	• PRE-REGISTRATION FOR COURSES 1991-1992: ELECTRONICS II
1991-92	• SELECTED AS A CO-OP STUDENT AND WORKED FOR ITV (Instructional Television)